

REMARKS

Claim Status

Claims 1-20 are pending. Claims 1-20 are rejected.

Claims 1-6, 10-14, and 18-19 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2, 4-6, 12-13, 15-17, 23-24, and 26-28 of co-pending Application No. 10/671,061.

Claims 1-20 are rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter.

Claims 5 and 14 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite.

Claims 1-2, 10-11, and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,223,204 to Tucker (hereinafter "Tucker").

Claims 3-5, 12-14, and 19 are rejected under 35 U.S.C. §103(a) as being unpatentable over Tucker in view of U.S. Patent No. 6,269,391 to Gillespie (hereinafter "Gillespie").

Claims 6-9, 15-17, and 20 are rejected under 35 U.S.C. §103(a) as being unpatentable over Tucker and Gillespie and further in view of U.S. Patent No. 6,517,587 to Satyavolu et al. (hereinafter "Satyavolu").

Response

With regard to the provisional rejection of claims 1-6, 10-14, and 18-19 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2, 4-6, 12-13, 15-17, 23-24, and 26-28 of co-pending Application No. 10/671,061, Applicants respectfully request that any requirement of a response to the rejection be held in abeyance until the issuance of a notice of allowable subject matter.

Claims 1-20 have been rejected under 35 U.S.C §101 because these claims recite a computer-readable medium and the specification defines a computer-readable medium to include "transmission-type media" (such as a carrier wave). The specification has been amended to delete the reference to transmission-type media as examples of computer-readable media. Applicants respectfully submit, therefore, that this basis for rejecting claims 1-20 under 35 U.S.C. §101 has been overcome.

Independent claims 1, 10, and 18 have been rejected under 35 U.S.C. §101, with Examiner taking the position that the invention is directed to non-statutory subject matter, since

the final result of the claims is “determining a state,” rather than entering a state. Independent claims 1, 10, and 18 have been amended to recite that the thread enters a spin state or a sleep state based on the thread count value. Applicants respectfully submit that independent claims 1, 10, and 18 now recite statutory subject matter and the rejection of these claims under 35 U.S.C. §101 has been overcome.

Examiner has stated that claims 18-20 recite an “apparatus;” however, the claimed invention would be interpreted by one of ordinary skill in the art as software because no hardware is recited as part of the system. Applicants respectfully disagree. Claims 18-20 recite limitations using “means plus function” terminology. These limitations are, therefore, interpreted in accordance with the structure disclosed for performing the respective function. Thus, the limitations recited in claims 18-20 would be interpreted by one of ordinary skill in the art to comprise the data processing system (hardware) executing program code to perform the recited functions. Applicants respectfully submit, therefore, that claims 18-20 do, in fact, recite an apparatus.

Dependent claims 5 and 14 have been amended to depend from independent claims 1 and 10, respectively. Applicants respectfully submit, therefore, that the rejection of these claims under 35 U.S.C. under §112 has been overcome.

Independent claims 1, 10 and 18 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Tucker. As a basis for this rejection, Examiner states that Tucker teaches a method for managing a mutex in a data processing system. Examiner states that “Tucker does not teach maintaining a spinning thread count value for a number of threads that are spinning on a mutex.” Examiner further states that Tucker does not teach entering a spin or a sleep state based on a spinning thread count. Examiner also correctly states that the Tucker reference only describes a system managing two threads. However, Examiner takes the position that it would be obvious to modify the teachings of Tucker to keep track of the number of spinning threads to determine whether to direct an acquiring thread to enter a spin state or a sleep state. Applicants respectfully disagree.

Tucker is entirely silent on the concept of a spinning thread count, since the number of spinning threads is not relevant to the teachings of Tucker. In the system taught by Tucker, the decision to place a thread in a spin state or a sleep state is based on the current state of the owning thread. As described beginning in column 3, line 60, the Tucker system comprises a

kernel level memory region that includes a plurality of light weight processes, a run queue, and kernel data structure associated with a user data structure. The user data structure represents the virtual availability of kernel data structure information in user level memory region. The kernel data structure contains the states of each corresponding light weight process. Information from the kernel data structure is mapped onto a user level memory region and made available to a thread's library for scheduling spinning and blocking threads. Information identifying the thread owning a mutex lock is stored. If an acquiring thread is unable to acquire a lock, (e.g., the lock is held by a prior schedule thread), the thread owning the particular mutex lock is identified, and the current state of the owning thread is determined. The potential states of a LWP include "running," "runnable but not running," "sleeping," or "stopped." If the particular LWP is running, another attempt is made to acquire the mutex lock. In the Tucker system, if the particular LWP is not currently running, then the thread attempting to acquire the mutex is put to sleep (i.e., is "blocked") until separately awakened.

In summary, Tucker teaches a system wherein the decision to place a thread in a spinning state or a sleep state is based on the state of the thread owning the mutex lock. Examiner's suggestion to modify Tucker to monitor the spinning thread count, as recited in independent claims 1, 10, and 18, rather than to determine the state of the thread owning the mutex lock would destroy the teachings of the preferred embodiment of Tucker and, therefore, a person of ordinary skill in the art would not seek such a modification.

For the reasons set forth hereinabove, Applicants respectfully submit that independent claims 1, 10, and 18 are not obvious under 35 U.S.C. §103(a) in view of Tucker and, therefore, are allowable over the art of record. Applicants further submit that all pending dependent claims are allowable as being dependent on an allowable base claim.

CONCLUSION

In view of the remarks set forth herein, the application is believed to be in condition for allowance and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the examiner is requested to telephone the undersigned.

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Respectfully submitted,

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